Remarks

1.   Applicant is grateful to the Examiner for indicating that Applicant's previous arguments were persuasive.

2.   Applicant notes that the Examiner now rejects claims 21 to 35 under U.S.C. 103(a) as being unpatentable over Dziong (US6625155) in view of Varian "Estimating the Demand for Bandwidth." The Examiner will be aware that in *ex parte* examination of patent applications, the Patent and Trademark Office bears the burden of establishing a *prima facie* case of obviousness. MPEP § 2142; *In re Fritch*, 972 F.2d 1260, 1262, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention is always upon the Patent and Trademark Office. MPEP § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984). Only when a *prima facie* case of obviousness is established does the burden shift to the applicant to produce evidence of nonobviousness. MPEP § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). If the Patent and Trademark Office does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Grabiak*, 769 F.2d 729, 733, 226 U.S.P.Q. 870, 873 (Fed. Cir. 1985). A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there

must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. MPEP § 2142.

3.   The Examiner accepts that Dziong does not disclose determining from mean bandwidth and bandwidth variance measurements of an aggregated traffic flow separate respective prices for bandwidth and bandwidth variance. However, the Examiner contends that Varian does disclose the foregoing feature of determining from mean bandwidth and variance measurements of an aggregated traffic flow separate respective prices for bandwidth and variance and that it would have been obvious to one skilled in the art to have incorporated Dziong's teachings of pricing-based quality of service with the teachings of Varian thus rendering the present invention as defined by at least claim 21 obvious. Applicant respectfully disagrees for the following reasons.

4.   Any traffic flow where the transmission bandwidth varies with time can be characterized by a mean bandwidth measurement and a bandwidth variance measurement. This is not unique to the present invention. What is unique to the present invention is the derivation from the mean bandwidth and bandwidth variance measurements performed on the aggregated traffic flow of separate respective prices for bandwidth and variance where these separate prices are then each applied to a traffic flow to be admitted to the aggregated traffic flow by way of controlling admission of the traffic flow to a network resource. One advantage provided by the present invention is that there is no need for the traffic flow source to determine a Quality of Service (QoS) scheme when requesting admission of the traffic flow to the network resource since the application of the separate prices for bandwidth and bandwidth variance are self-regulating. Either they produce a price that is acceptable to the traffic flow source or they do not. For example, where the

aggregated traffic flow has a low mean bandwidth measurement and a high bandwidth variance measurement and a traffic flow to be admitted has high bandwidth requirement but a low variance, the price for that traffic flow to be admitted will be relatively low despite its high bandwidth requirement since, in this example, variance rather than bandwidth will be charged at high rates. Thus, it can be seen that the present invention provides a sophisticated admission control mechanism through the use of the two separate pricing rates for bandwidth and variance. Also, there is no requirement on the traffic flow source of the present invention to regulate, i.e. police the traffic flow at the edge of the network resource to stay within a requested QoS scheme.

5.   Contrary to what the Examiner alleges, Varian is not concerned at all with measuring variance in either an aggregated traffic flow or in a traffic flow to be admitted to a same network resource in a communications network as that on which the aggregated flow is carried. Thus, Varian does not teach the feature of determining from mean bandwidth and bandwidth variance measurements of the aggregated traffic flow separate respective prices for bandwidth and variance nor any of the succeeding steps of claim 21 of sampling the traffic flow to be admitted to measure its mean bandwidth and mean variance or of applying said separate bandwidth and variance prices to the traffic flow to be admitted as a means of controlling admission of said traffic flow to the network resource. Varian discloses an experimental system to study of the effect of pricing bandwidth at discrete levels for a service delivered to users to determine the effect on users' utilization of the service at the discrete bandwidth price levels. This leads to an assessment of what is termed "user's time cost" which is a random parameter dependent on a user's circumstances and/or behavior. For example, a user who is patient can be considered as having a low user time cost whereas a user who is in a hurry is considered as one who has a high time cost. It is not revealing to disclose that a user having a high user time cost is believed to be more willing to adopt a higher cost for a higher level of bandwidth service than one who has a low user time cost.

6.   Varian discloses that, in the experimental system, user service bandwidth was priced at six different discrete bandwidth levels ranging from 8kbs (kilobits per second) to 128kbs, with 8kbs being free and the remaining five levels being charged at successively higher rates. Results from the experimental system draw the surprising conclusion that users generally have a low user time cost, significantly less than the wage rate at which they would expect to be paid for employment.

7.   It is clear from Varian that bandwidth is priced at successively greater levels, but that no price mechanism is disclosed for bandwidth variance. Varian is not concerned with whether a service delivered to a user involves bandwidth variance. All that Varian is concerned with is whether a user is willing to move up from a free basic user bandwidth service level (of 8kbs) to a higher user bandwidth level that attracts a cost, the rate of which increases as the user bandwidth level selected by the user increases. This is logical in that a user's perception of a service is governed by their understanding of what they believe they are paying for, namely a certain level of bandwidth of so many kilobits per second, but that the user can have no direct knowledge of whether data being delivered at that service level suffers from any degree of bandwidth variance and even if they did it would have no real meaning to them giving its complex statistical form in any real situation. In contrast, the measure of variance and the pricing of it are important in the present invention because the present invention is concerned with admitting traffic flows to join an aggregate traffic flow on a network resource but is not directly concerned with a user's perception of the service being delivered, i.e. a user's "time cost".

8.   It can be seen from the foregoing that the combination of Dziong and Varian does not disclose or suggest all of the limitations of claim 21. Further, even if one skilled in the art were to combine the teachings of Dziong and Varian, one would arrive at an arrangement in which traffic flow admission to an aggregate flow is controlled based on successively greater rates for successively greater bandwidth

levels. There is nothing, however, in the combination of these references that would lead one of ordinary skill in the art to derive separate prices for bandwidth (level) and bandwidth variance and to apply these separate prices to a traffic flow to be admitted to an aggregate flow on a network resource in a communications network.

9. If the Examiner remains of the view that Varian discloses the features of i) sampling the traffic flow to be admitted to measure its mean bandwidth and mean variance and ii) of applying said separate bandwidth and variance prices to the traffic flow to be admitted as a means of controlling admission of said traffic flow to the network resource, then he is requested to identify where in Varian either or both of these steps are specifically disclosed. Applicant has studied the whole of Varian and can find no such teachings or even suggestions of these steps or similar features.

10. The present invention makes a useful contribution to the art in that it provides a means of managing the admissions of traffic flows to a network resource in accordance with two price determinations relating to the resource, wherein the price determinations can be <u>separately</u> applied to respective corresponding characteristics (measurements) of a traffic flow to be admitted to the resource. This provides an admission control arrangement that is much more sophisticated and versatile that those of the prior art references of record, whether taken singly or in any combination.

11.   In view of the foregoing, it is submitted that the claims presented herewith are in condition for allowance.

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